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AN 1986-179992 [28] WPIDS
DNN N1986-134293 DNC C1986-077558
TI **Copper wire** for bonding semiconductor devices - contains trace amts. of titanium, nickel, zirconium and palladium etc..
DC L03 M26 P55 U11
PA (TANF) TANAKA DENSHI KOGYO KK
CYC 1
PI JP 61113740 A 19860531 (198628)* 4p
ADT JP 61113740 A JP 1984-236410 19841109
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AB JP 61113740 A UPAB: 19930922
The bonding **Cu wire** comprises high purity **Cu** over 99.99% purity contg. 5-100 ppm by wt. of at least one of 3-50 ppm Ti, Cr, Mn, and Fe respectively, 5-100 ppm Ni, and Co respectively and at least one of 3-50 ppm Zr, and Nb respectively, 5-100 ppm Pd, **Ag**, In, and Sn respectively.

USE/ADVANTAGE - The bonding **Cu wire** is used as a substitute of Au **wire**, and satisfies not only minimum requirements for a bonding **wire**, i.e., (a) high tensile strength (b) high temp. strength, (c) capable of heat welding and supersonic bonding, (d) near true sphere, and consistency of the ball shape, and (e) high bond strength after bonding, but also has improved heat resistance and corrosion resistance, and maintains electrical conductivity.

In an example, the **Cu wire** comprising by wt. 2 ppm Ti, 2 ppm Zr, and bal. 99.999% **Cu**, 25 micron dia. which was made by repeated drawing and process heat treatment. It has T.S. 10.3 gr, El. 20% at roomtemp., and T.S. 9.7 gr, El.15% at high temp., good ball shape in bonding using combination of heat welding and supersonic vibrations, bond strength after bonding 5.2 gr, hardness 41 Hv, and no tip cracks.
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